# Exhibit 1

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF VIRGINIA**
Alexandria Division

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|---|---|
| UNITED STATES OF AMERICA, | \| |
| Plaintiff, | \| |
| | \| |
| v. | \|     Case No. 1:20-cr-00143 |
| | \| |
| ZACKARY ELLIS SANDERS, | \| |
| Defendant. | \| |

<u>Second Declaration of Seth Schoen</u>

I, Seth Schoen, declare under penalty of perjury:

1.  I have been retained as an expert for the defense on Tor and privacy technology, and previously submitted a declaration in this matter, including a description of my qualifications.
2.  I have prepared two videos to supplement my prior declaration by providing a visual demonstration of several points I addressed. These videos will be filed as Exhibit A and Exhibit B to this declaration.
3.  These videos contain a true and accurate depiction of the steps required to download and use the Tor Browser, as well as the Google Chrome and Mozilla Firefox browsers.
4.  Accurate transcripts of my narration for these videos are attached as Exhibits C and D, respectively.

DONE this 17th day of September, 2021.

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Seth D. Schoen

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Exhibit A

Seth D. Schoen, Video: *How to Download Browsers*, Vimeo (Sept. 17, 2021), https://vimeo.com/607429883.

Exhibit B


Seth D. Schoen, *Video: How to Use Browsers,* Vimeo (Sept. 17, 2021),
https://vimeo.com/607431066.

Exhibit C

This is Seth Schoen, a consultant to the defense in *United States vs. Zackary E. Sanders*. I've prepared two videos to demonstrate how quick and easy it is to download and use the Tor Browser, as well as other web browsers like Google Chrome and Mozilla Firefox. I talked about that in a declaration I previously submitted in this case, in August 2020. This first video demonstrates the process of downloading these browsers on a personal laptop, and the second video demonstrates using each of them to browse the web. These videos also show how the process of downloading and using an alternative browser is fairly similar, regardless of which browser you choose.

The developers of various web browsers, including the developers of Google Chrome, Mozilla Firefox, and the Tor Browser, have all worked hard to make their browser software easily accessible and usable. This laptop is running Microsoft Windows and comes with Microsoft's web browser called Edge. We can use Edge to search for and download other browser software.

First, we'll download Google Chrome, which is the most widely used web browser today. We can open Microsoft Edge and search for "google chrome". Our search finds a link to Google's download page for Chrome. On that page, we click on the "Download Chrome" button. After downloading Chrome, we open and run the installer. Now Chrome is being installed.

Chrome opens automatically after installation. By closing everything, we can see that we also now have a Google Chrome icon on the desktop, which can be used to open this browser.

The process is very similar for installing another browser, Mozilla Firefox. Using the Microsoft Edge browser, we search for "mozilla firefox". We find Mozilla's download page for Firefox, which mentions its privacy features. After downloading Firefox, we open and run its installer. Now the Firefox browser is being installed.

We close everything and see that we now have a Firefox icon on the desktop as well. And this can be used whenever we want to start Firefox.

Finally, we'll download the Tor Browser on this laptop. As with the previous two examples, we can search for "Tor Browser" and immediately find the download page from the Tor Project. This page advertises: "Defend yourself. Protect yourself against tracking, surveillance, and censorship." Since we're using Windows, we'll click to download the Tor Browser for Windows.

The download completes in a few seconds. This installer asks which language to use—we'll select English—and then shows the progress of the installation process. This installer is doing exactly the same thing as the other browsers' installers—copying files onto the laptop—but it's more transparent about the exact details of the installation process. The first time we open Tor Browser, we select "Always connect automatically" to confirm that we don't need Tor Browser to ask us whether to connect when we use it in the future.

Now, closing everything, we have a "Start Tor Browser" icon on the desktop.
In addition to Microsoft Edge, which came pre-installed, this computer now has three different choices of web browsers that we've fully installed. We can now run each by clicking an icon on the desktop. In the next video, we'll use each of the three to browse the web.

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Exhibit D

This is Seth Schoen, a consultant to the defense in *United States vs. Zackary E. Sanders*.

This is the second of two videos I've prepared to show how quick and easy it is to download and use the Tor Browser, as well as other browsers like Google Chrome and Mozilla Firefox. In the first video, we saw how all three of these web browsers can quickly be downloaded from the Internet onto a personal laptop. Now, in this video, we'll use each them to browse the web.

First, let's open Google Chrome by clicking on its icon on the desktop.

We can search the web for terms like "department of justice" and get various results—in this case using Google's search engine.

Now we search for "freedom of the press". Here are the search results for our search.

Now, let's open Mozilla Firefox by clicking on its icon on the desktop.

As an example of web browsing with Firefox, we repeat the "department of justice" search from before.

Now let's repeat the "freedom of the press" search. Here are the search results for that search.

Finally, let's try the Tor Browser, again by clicking on its icon on the desktop.

When we open the Tor Browser, it connects automatically, showing us Tor Browser's starting page which says "You're ready for the world's most private browsing experience".  We see a very familiar web browsing interface. Although the software is routing these connections through Tor nodes all around the world, the user doesn't have to do anything special to get that privacy benefit.

The browser's appearance and use are similar to the other browsers we've used. We can search in Tor Browser for "department of justice". Here are the search results. We can also navigate to any ordinary web site by typing in its address—for example, we can go to Google's web site and use Google Search. Here, we search for "freedom of the press" after navigating to Google's site.

The Tor Browser can be used to browse ordinary web sites just in the same way that they can be browsed with any other browser.

In addition to allowing you to visit ordinary web sites just like other browsers, the Tor Browser lets you access so-called *onion sites*, which are only accessible through Tor. There are Tor-specific search engines that allow you to search across onion sites. In this case, by searching for "tor search", we find a search engine called Torch, whose introductory page is at torsearch.org. This is a link to Torch's own onion site. We can click on this in Tor Browser just like clicking on any other link.

Notice that clicking on links to onion sites works the same in Tor Browser as clicking on any other link. That is, you don't have to type in the address, or even know what the address is, in order to reach an

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onion site. Whenever a site that you're viewing offers a link to an onion site, you can navigate there with a single click.

Torch's search interface as well as the search results can only be accessed over Tor. That's because they're only available on Torch's onion site. You can search for any term—here we search for "department of justice".

There are several different results here from several different sites, apparently reproducing news articles about the U.S. Department of Justice. Like with other web links, we don't know exactly what we would find if we clicked on any of these links. The link itself doesn't reveal the specific content that's on the other side.

Now we search for "freedom of the press".

One of the search results here is an onion site for the Freedom of the Press Foundation, a non-profit organization. By clicking on that link we can get to their onion site. Again, although the Freedom of the Press Foundation has a particular onion site address, we didn't have to know it or type it in in order to get there.

This site also mentions Securedrop, which is still another example of an onion site. Let's click on that link and see the home page of the Securedrop project. The Securedrop home page itself is also available as an onion site, and various news organizations maintain their own Securedrop onion sites through which sources can privately and securely submit tips and documents to their journalists.

Finally, we'll look at a different search engine for finding onion sites with the Tor browser. We open the Tor Browser and search for "tor search" once again. One of the results is the search engine Ahmia. In the same way that there are multiple search engines that can be used to search the web, there are also multiple search engines for onion sites. Ahmia's welcome page states that abuse material is filtered out in response to user complaints.

We'll search Ahmia for "bdsm".

These are Ahmia's results for this search term, which, once again, are links to onion sites to which we could navigate with a single click on any result. The search results are fairly varied, and have different descriptions. One result here has no description at all.

Ahmia says that it blacklists sites containing abuse material, based on user complaints. That means that its blacklist is not necessarily entirely comprehensive or up-to-date.

This concludes the demonstration of using the downloaded browsers.

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